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Subject: Preliminary List of Analytical Variables and Relationships for Assessment of
CALFED Alternatives

The attached table provides an initial list of response variables that are suggested for CALFED programmatic assessment purposes. Response variables are the major variables that should be estimated for each CALFED alternative or action component. The response variables are the smallest set of indicators needed to evaluate the full range of potential benefits and secondary impacts from CALFED actions. They have been listed in five categories, corresponding to the four CALFED resource areas (water quality, water supply, ecosystem, and system integrity) with economics as an additional category of benefit and impact assessment variables.

Each response variable is dependent on several primary variables that are limiting factors or constraints on the response variable. The primary variables influence on the response variables can be illustrated on a graph or map. This is called an analytical relationship. Primary variables may be dependent on other secondary variables which can also be described with charts or maps. CALFED actions or components will change some of these primary or secondary variables. Each pair of variables in the "chain of variables" between some CALFED action and a response variable can be described with an analytical relationship. These individual relationships are not shown on the attached table. These will be described and illustrated in the list of analytical relationships that will be prepared as part of the analytical tools workshop materials and final report.

A variable that is directly changed by some potential CALFED action is called a control variable. The control variables are the last (i.e. to the right) variable shown on each line of the table. Some control variables are changed by specific actions. These are labeled with a "X" and some example CALFED actions that directly control these variables are listed. The monthly flows, reservoir storages, as well as ground water pumping, recharge, and storage are assumed to be calculated with a system-wide water management model (e.g. DWRSIM with some ground water enhancements). These control variables are labeled with "Flows" since they will be simulated together for each CALFED alternative. Some of the relationships are labeled with "Input" because they are hydrologic or meteorologic variables that will not be changed by CALFED actions. A few control variables are labeled with "Fixed" because they are expected to remain unchanged by CALFED actions. Control variables labeled with "Feedback" depend on other calculated variables. Control variables labeled with "Response" are dependent on other response variables.